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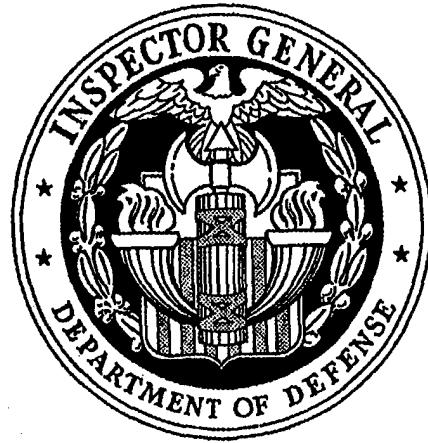
JOHNSTON ATOLL CHEMICAL AGENT DISPOSAL SYSTEM
PREPARATION FOR YEAR 2000

Report No. 99-060   December 24, 1998

Office of the Inspector General
Department of Defense

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Acronyms

JACADS	Johnston Atoll Chemical Agent Disposal System
Y2K	Year 2000

December 24, 1998

MEMORANDUM FOR ASSISTANT SECRETARY OF THE ARMY FOR
RESEARCH, DEVELOPMENT AND ACQUISITION
AUDITOR GENERAL, DEPARTMENT OF THE ARMY

SUBJECT: Johnston Atoll Chemical Agent Disposal System Preparation for Year 2000
(Report No. 99-060)

We are providing this audit report for review and comment. Management did not comment on a draft of this report. DoD Directive 7650.3 requires that all recommendations be resolved promptly. Therefore, we request that management comment on this final report and its recommendations by January 25, 1999.

Management comments should indicate concurrence or nonconcurrence with the finding and each recommendation. Comments must describe actions taken or planned in response to agreed-upon recommendations and provide the completion dates of the actions. State specific reasons for any nonconcurrence and propose alternative actions, if appropriate.

We appreciate the courtesies extended to the audit staff. For additional information on this report, please contact Mr. Raymond A. Spencer at (703) 604-9071 (DSN 664-9071), or Mr. Thomas S. Bartoszek at (703) 604-9014 (DSN 664-9014). See Appendix B for the report distribution. The audit team members are listed inside the back cover.

Robert J. Lieberman
Assistant Inspector General
for Auditing

Office of the Inspector General, DoD

Report No. 99-060
(Project No. 8AS-0032.10)

December 24, 1998

Johnston Atoll Chemical Agent Disposal System Preparation for Year 2000

Executive Summary

Introduction. This is one in a series of reports being issued by the Inspector General, DoD, in accordance with an informal partnership with the Chief Information Officer, DoD, to monitor DoD efforts in addressing the year 2000 computing problem. For a listing of audit projects addressing the issue, see the year 2000 webpage on the IGnet at http://www.ignet.gov.

Audit Objectives. The overall audit objective was to determine whether the Johnston Atoll Chemical Agent Disposal System was adequately preparing its information technology systems to resolve date-processing issues regarding the year 2000 computing problem. Specifically, the audit determined whether the Johnston Atoll Chemical Agent Disposal System complied with the DoD Year 2000 Management Plan.

Audit Results. The Army Project Manager for Chemical Stockpile Disposal did not make timely progress in assessing the information technology subsystems of the Johnston Atoll Chemical Agent Disposal System and did not prepare the necessary year 2000 documentation, such as the assessment plan, the contingency plan, the risk-management plan, and the validation plan and schedule, as required by the DoD Year 2000 Management Plan. In addition, the Army Program Manager for Chemical Demilitarization at Aberdeen Proving Ground, Maryland, incorrectly reported the Johnston Atoll Chemical Agent Disposal System subsystem status in the monthly report to DoD. As a result, the Army faces increased risk that it may not be able to implement corrections before the turn of the century, resulting in increased risk of mission impairment, perhaps even including the temporary closure of the Johnston Atoll Chemical Agent Disposal System at a weekly cost of $2 million. The audit results are detailed in Part 1.

Summary of Recommendations. We recommend that the Army Program Manager for Chemical Demilitarization establish a schedule to identify and correct year 2000 problems for systems at Johnston Atoll, require the project manager at Johnston Atoll to prepare an assessment plan, a contingency plan, a risk management plan and a validation plan and schedule, and correct the monthly report to DoD by indicating that the Process Data Acquisition Reporting System is not year 2000 compliant.

Management Comments. We provided a draft of this report on November 19, 1998. The Army Program Manager for Chemical Demilitarization did not comment on the draft report; therefore, we request that the Program Manager for Chemical Demilitarization provide management comment on the final report by January 25, 1999.

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Part I - Audit Results

Audit Background

Because of the potential failure of computers to run or function throughout the Government, the President issued an Executive Order, "Year 2000 Conversion," February 4, 1998, making it policy that Federal agencies ensure that no critical Federal program experiences disruption because of the year 2000 (Y2K) problem and that the head of each agency ensure that efforts to address the Y2K problem receive the highest priority attention in the agency.

The new target completion date for implementing mission-critical systems is December 31, 1998. The DoD Y2K Management Plan also states the criteria for DoD Components to determine the appropriate Y2K phase for each system noted in the quarterly report. Each phase represents a major Y2K program activity or segment. Target completion dates range from December 1996 through March 1999. Each system must meet defined exit criteria before proceeding into the next phase.

The Secretary of Defense issued the memorandum "Year 2000 Compliance" on August 7, 1998, and stated that the Y2K computer problem is a critical national Defense issue. He stated that Military Departments are responsible for ensuring that their list of mission-critical systems is accurately reported in the DoD Y2K database effective October 1, 1998. On August 24, 1998, the Deputy Secretary of Defense directed that the Military Departments provide plans for Y2K-related end-to-end testing of their respective functional process by November 1, 1998. Public Law 105-271, "Year 2000 Information and Readiness Disclosure Act," October 19, 1998, is intended to encourage the disclosure and exchange of information about computer processing problems, solutions, test practices and test results, and related matters in connection with the transition to the year 2000.

Johnston Atoll. The Army Program Manager for Chemical Demilitarization at Aberdeen Proving Grounds, Maryland, is responsible for the safe destruction of all chemical warfare agents, including nerve gas and blister agents. The program manager oversees and manages nine chemical stockpile sites. Of the nine sites, only two have active chemical weapons disposal facilities. One of these is at Johnston Atoll, which is an island located southwest of Hawaii. The mission of the Army project manager at Johnston Atoll is to destroy stockpile chemical weapons. The destruction process includes preparation, treatment, air pollution abatement, by-product disposal, system performance, public confidence, and lessons learned. The disposal occurs in the Johnston Atoll Chemical Agent Disposal System (JACADS). The Army began to destroy its stockpile of chemical munitions in June 1990 and should complete it shortly after the year 2000. The Army operates the site under a permit originally issued in August 1985 and renewed in July 1998 by the Environmental Protection Agency. The permit allows the Army to operate a hazardous waste storage and incineration facility, requires the Army to take samples of the waste and retain

records of samples and all monitoring information for a period of 3 years. The data must be immediately available for inspection by Environmental Protection Agency officials.

Audit Objectives

The primary audit objective was to determine whether the project manager for JACADS was adequately preparing its information technology systems to resolve date-processing issues for the year 2000 computing problem. Specifically, the audit determined whether the project manager for JACADS complied with the DoD Year 2000 Management Plan. Appendix A describes the audit scope and methodology, the results of the management control program review, and a summary of prior coverage.

Johnston Atoll Chemical Agent Disposal System Preparation for Year 2000

The Army project manager at Johnston Atoll did not make timely progress in assessing the information technology subsystems of JACADS. Also, he did not prepare the necessary Y2K documentation required by the DoD Y2K Management Plan, such as the assessment plan, the contingency plan, the risk-management plan, and the validation plan and schedule. In addition, the Army program manager incorrectly reported the JACADS subsystem status. This condition occurred because of a lack of oversight by the program manager in reporting the Y2K status for JACADS and emphasis in preparing Y2K documentation. As a result, the Army may not be able to implement corrections before the turn of the century, thus increasing risk of mission impairment, perhaps even including the temporary closure of the Johnston Atoll Chemical Agent Disposal System at a weekly cost of $2 million.

Assessment and Renovation Phase Requirements

Assessment Phase. The assessment phase is used to gather and analyze information. DoD Components must develop a Y2K assessment plan that includes the size and scope of the problem, necessary infrastructures, software inventories, a Y2K cost estimate to repair an existing system, and identifies system interfaces. Also, DoD Components must prepare a contingency plan that considers the consequences of noncompliance and a risk-management plan that identifies how the system may fail, the impact on the mission, and how the failure will affect other functions and missions. A contingency plan should be completed for all mission-critical systems that have not completed the implementation phase by December 1998.

The DoD Management Plan required the completion of the assessment phase for mission-critical systems by June 30, 1997. In addition, the DoD Components must prepare an assessment plan, a contingency plan, and a risk management plan as part of the exit criteria to proceed to the next Y2K phase. The plans are management tools to assist managers in making their systems compliant.

Renovation Phase. The renovation phase is to make the system Y2K compliant by fixing, replacing, or retiring the system. This phase required each DoD Component to develop and document a validation plan and schedule. The validation plan should indicate when all systems should be validated and should address their testing environments. Mission-critical systems should have completed this phase by June 30, 1998.

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Y2K Monthly Report

A June 19, 1998, memorandum from the Assistant Secretary of Defense (Command, Control, Communication, and Intelligence) requires DoD Components to submit monthly reports to DoD and the Office of Management and Budget to help them to oversee and monitor the DoD compliance effort, to identify and prioritize risks, and to solve Y2K problems quickly. If erroneous information goes unrecognized, computers and weapon systems may fail, and the problem will perpetuate through interfaces and other automated information systems.

Timely Assessment

The Army project manager at Johnston Atoll did not begin to assess the JACADS until the summer of 1998 because of other priorities such as the renewal of the Environmental Protection Agency permit. The project manager assessed the four subsystems of JACADS that include the Process Data Acquisition Reporting System, Automatic Continuous Air Monitoring System, JACADS Control Code, and the Supply and Purchasing Tracking System. The Process Data Acquisition Reporting System is not compliant, the Automatic Continuous Air Monitoring System's Y2K status is not known, and the other two subsystems are compliant.

Process Data Acquisition Reporting System. The Process Data Acquisition Reporting mission-critical system communicates with the plant control system. It consists of software, hardware, and an operating system that record alarm, event, and analog data when they occur. Alarm data identify problems associated with the plant alarm system. Event data monitor and record information related to mechanical function of the plant such as switches. Analog data record information such as furnace pressure or temperature every 3 seconds. All data are vital to the safe operation of the plant, which must function in compliance with the Environmental Protection Agency permit.

The project manager identified that the software and operating systems for the Process Data Acquisition Reporting System are not Y2K compliant because the software uses 2-digit years, and because the manufacturer no longer supports the operating system and will not certify that it is Y2K compliant. The project manager plans to lease a redundant compliant system to use as a test bed for making Y2K corrections. Changes cannot be made to the on-line system while the JACADS is operating because of Environmental Protection Agency reporting requirements. The project manager also plans to upgrade the software on the redundant system and make other changes to ensure that the redundant system reports accurate information. Once the leased system is Y2K compliant, the changes will be made to the on-line system during the next shutdown in 1999. The request for quotation for the leased system was in draft in October 1998.

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The Army Program Manager for Chemical Demilitarization, Aberdeen Proving Ground, Maryland, who oversees the plant's operation at Johnston Atoll, stated that the project manager's proposed plan is one of several options being considered. A final decision for making the system Y2K compliant has not yet been made.

Automatic Continuous Air Monitoring System. The Automatic Continuous Air Monitoring System monitors the air in the JACADS facility for foreign agents. It is a mission-critical system that is operated by a microprocessor, which controls the sequence of steps to acquire an air sample, analyze it, convert the results to data, and transmit the data to the plant control system. The system samples the air every 3 to 5 minutes, and if a sample does not fall within set parameters, an alarm alerts officials of potential atmospheric contamination. Time is used to record the date of the event but does not affect the operation of the alarm system.

Army officials at Johnston Atoll have about 90 Automatic Continuous Air Monitoring systems within the JACADS facility. The Army project manager at Johnston Atoll received conflicting information concerning the system's Y2K compliance status. The Army conducted a rollover test on the system and found that it operated without errors. The rollover test set the clocks to just before the year 2000 and allowed them to roll over. Raytheon, an Army advisor, stated that the system is not Y2K compliant based on their rollover test. They are unsure whether the monitoring devices are Y2K compliant, whether they will provide accurate information after the year 2000, and whether they will compromise other interface systems. The Project Manager plans to determine the Y2K status by December 1998, and make improvements, if necessary.

The project manager's late start in assessing the subsystems caused him to miss the June 30, 1997, deadline for completing the assessment phase and the June 30, 1998, deadline for completing the renovation phase for mission-critical systems. In addition, the Y2K planning and execution stages are only in the initial phases. The Army program manager, Aberdeen Proving Ground, Maryland, still has not determined how to correct the problem with the Process Data Acquisition Reporting System or whether the Automatic Continuous Air Monitoring System is Y2K compliant and will impact other interface systems. The program manager should prepare a schedule for identifying and correcting Y2K problems for the affected subsystems at JACADS.

Documentation and Reporting

Y2K Planning Tools. The Army did not prepare an assessment plan, a contingency plan, and a risk-management plan for any of the JACADS subsystems. The Army program manager at Aberdeen Proving Grounds and the project manager at JACADS stated that they were preparing these plans but had not yet completed them. In October 1998, the Army program manager had a brief outline of the contingency plan. The DoD Management Plan required DoD Components to complete the plans for all mission-critical systems to complete the assessment phase by June 30, 1997.

The Army also did not develop and document a validation plan and schedule. The DoD Management Plan requires DoD Components to prepare the validation plan and schedule for all mission-critical systems to complete the renovation phase by June 30, 1998.

All the plans are critical. Much additional work is needed to plan and execute corrections in time to make JACADS Y2K compliant. DoD Components must prepare the plans and a schedule making the affected subsystems Y2K compliant.

Y2K Report. The Army Program Manager for Chemical Demilitarization did not accurately report the status of the JACADS in the DoD monthly report. In the July 1998 report to DoD, the program manager reported five subsystems while the project manager at Johnston Atoll reported to us that there were only four, because the maintenance tracking system and the supply purchase tracking system were combined in early 1998. The September 1998 report corrected this oversight. However, both the July and September 1998 monthly reports showed the Process Data Acquisition Reporting System as Y2K compliant.

To comply with the Secretary of Defense memorandum of August 7, 1998, the status of mission-critical systems reported to DoD must be accurate and consistent. Without accurate reporting, DoD cannot oversee and monitor Components' compliance effort to identify and prioritize risks and to solve Y2K problems quickly. The program manager must revise the monthly report to reflect the current Y2K status for the Process Data Acquisition Reporting System.

Oversight

The Army Program Manager for Chemical Demilitarization at Aberdeen Proving Grounds did not provide oversight to the JACADS. The program manager did not visit JACADS and did not verify the progress reported to DoD in making the Johnston system Y2K compliant. For example, the Army program manager concluded that the Process Data Acquisition Reporting System was Y2K compliant, yet Army officials indicated that it needs major repairs and the leasing of a redundant system to make it compliant. In addition, the program manager did not require the project manager to prepare an assessment plan, a contingency plan, a risk-management plan, and a validation plan and schedule for the JACADS subsystems. In August 1997, program management officials believed the system to be Y2K compliant, based on preliminary test results of the JACADS. Later information showed that the level of testing was insufficient. However, program management officials did not take appropriate oversight action to ensure that reporting was accurate and that documentation was available and prepared by the JACADS project manager.

The lack of site visits to address the problems at JACADS contributed to the misunderstanding and untimely implementation of corrections. If program management officials provided the proper oversight to the project manager at

JACADS, the project manager may have prepared the necessary tools for managing the Y2K problem, reported the correct system status, and begun the Y2K assessment earlier.

Current Management Action

The Program Manager for Chemical Demilitarization at Aberdeen Proving Grounds held a meeting in October 1998 for the nine Chemical Stockpile project managers to discuss and complete a Y2K program implementation plan. The objectives of the meeting were to complete an overall program strategy and an assessment strategy, and develop guidelines for site testing and contingency planning. The meeting results should help in the assessment of Y2K for JACADS and other chemical demilitarization sites and with the preparation of necessary planning documentation. In addition, the program manager was planning to procure the Year 2000 Repository from Raytheon Engineers and Constructors for all of the sites. This is a multi-industry Y2K database that provides a methodology for collecting and classifying inventory, a repository of potential plant floor issues and solutions, assessment impact, and remediation reports. The database will help in the assessment of systems to determine their Y2K status, but it is not an overall solution.

Recommendations for Corrective Action

We recommend that the Program Manager for Chemical Demilitarization:

1. Establish a schedule to identify and correct year 2000 problems on systems at Johnston Atoll.

2. Require the Project Manager for Chemical Stockpile Disposal at Johnston Atoll to prepare an assessment plan, a contingency plan, a risk-management plan, and a validation plan and schedule.

3. Correct the DoD monthly report by indicating that the Process Data Acquisition Reporting System is not year 2000 compliant.

Management Comments Required

We provided a draft of this report on November 19, 1998. The Army Program Manager for Chemical Demilitarization did not comment on the draft report; therefore, we request that management comment on the final report.

Part II - Additional Information

Appendix A. Audit Process

This in one in a series of reports being issued by the Inspector General, DoD, in accordance with an informal partnership with the Chief Information Officer, DoD, to monitor DoD efforts to address the Y2K computing challenge. For a listing of audit projects addressing this issue, see the Y2K webpage on IGnet at <http://www.ignet.gov>.

Scope

Work Performed. We reviewed and evaluated the progress made on the Johnston Atoll Chemical Agent Disposal System in resolving the Y2K computing issue. We evaluated Y2K efforts made and compared them with the DoD Management Plan; conducted discussions with technical, business, and contracting officials; and evaluated Y2K documentation where available.

DoD-wide Corporate Level Government Performance and Results Act Goals. In response to the Government Performance and Results Act, the DoD has established 6 DoD-wide corporate level performance objectives and 14 goals for meeting those objectives. This report pertains to achievement of the following objective and goal:

- **Objective:** Prepare now for the uncertain future.

- **Goal:** Pursue a focused modernization effort that maintains U.S. qualitative superiority in key war-fighting capabilities. (DoD-3)

DoD Functional Area Reform Goals. Most major DoD functional areas have also established performance improvement reform objectives and goals. This report pertains to achievement of the following functional area objective and goal:

Information Technology Management Functional Area.

- **Objective:** Provide services that satisfy customer information needs.

- **Goal:** Upgrade technology base. (ITM-2-3)

General Accounting Office High-Risk Area. In its identification of risk areas, the General Accounting Office has specifically designated risk in resolution of the Y2K problem as high. This report provides coverage of that problem and of the overall Information Management and Technology high-risk area.

Methodology

Audit Type, Dates, and Standards. We performed this economy and efficiency audit from August through November 1998, in accordance with auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD. We did not rely on computer-processed data or statistical sampling procedures to develop conclusions on this audit.

Contacts During the Audit. We visited or contacted individuals and organizations within DoD. Further details are available on request.

Management Control Program. We did not review the management control program related to the overall audit objective because DoD recognized the Y2K issue as a material management control weakness area in the FY 1997 Annual Statement of Assurance.

Summary of Prior Coverage

The General Accounting Office and the Inspector General, DoD, have conducted multiple reviews relating to Y2K issues. General Accounting Office reports can be accessed over the Internet at http://www.gao.gov. Inspector General, DoD, reports can be accessed over the Internet at http://www.dodig.osd.mil.

Appendix B. Report Distribution

Office of the Secretary of Defense

Under Secretary of Defense for Acquisition and Technology
    Director, Defense Procurement
    Director, Defense Logistics Studies Information Exchange
Under Secretary of Defense (Comptroller)
    Deputy Chief Financial Officer
    Deputy Comptroller (Program/Budget)
Assistant Secretary of Defense (Command, Control, Communications, and Intelligence)
    Deputy Assistant Secretary of Defense (Command, Control, Communications, and
        Intelligence, Surveillance, Reconnaissance, and Space Systems)
    Deputy Chief Information Officer and Deputy Assistant Secretary of Defense (Chief
        Information Officer Policy and Implementation)
    Principal Deputy – Y2K
Assistant Secretary of Defense (Public Affairs)
Director, Joint Staff

Department of the Army

Assistant Secretary of the Army (Research, Development, and Acquisition)
Chief Information Officer Army
Inspector General, Department of the Army
Auditor General, Department of the Army

Department of the Navy

Assistant Secretary of the Navy (Financial Management and Comptroller)
Chief Information Officer, Navy
Auditor General, Department of the Navy

Department of the Air Force

Assistant Secretary of the Air Force (Financial Management and Comptroller)
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Inspector General, Department of the Air Force
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Other Defense Organizations

Director, Defense Information Systems Agency
    Inspector General, Defense Information Systems Agency
Director, National Security Agency
    Inspector General, National Security Agency
Inspector General, Defense Intelligence Agency
Inspector General, National Imagery and Mapping Agency
Inspector General, National Reconnaissance Office

Non-Defense Federal Organizations and Individuals

Office of Management and Budget
    Office of Information and Regulatory Affairs
Technical Information Center, National Security and International Affairs Division,
    General Accounting Office
Director, Defense Information and Financial Management Systems, Accounting and
    Information Management Division, General Accounting Office

Chairman and ranking minority member of each of the following congressional
committees and subcommittees:

    Senate Committee on Appropriations
    Senate Subcommittee on Defense, Committee on Appropriations
    Senate Committee on Armed Services
    Senate Committee on Governmental Affairs
    Senate Special Committee on the Year 2000 Technology Problem
    House Committee on Appropriations
    House Subcommittee on National Security, Committee on Appropriations
    House Committee on Government Reform and Oversight
    House Subcommittee on Government Management, Information, and Technology,
        Committee on Government Reform and Oversight
    House Subcommittee on National Security, International Affairs, and Criminal
        Justice, Committee on Government Reform and Oversight
    House Committee on National Security

Audit Team Members

The Acquisition Management directorate, Office of the Assistant Inspector General for Auditing, DoD, produced this report.

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